
JOURNAL
OF THE
ARNOLD ARBORETUM

VOL. XXXIV

APRIL 1953

NUMBER 2

STUDIES OF PACIFIC ISLAND PLANTS, XVI
NOTES ON FIJIAN RUBIACEAE¹

A. C. SMITH

THE PRESENT PAPER is intended primarily to place on record the apparently undescribed species of Fijian Rubiaceae collected by the writer in 1947.² Twenty species are here described as new, in the genera *Gardenia*, *Ixora*, and *Psychotria*. No effort is here made toward a revision of the family on a local scale, but field observation inclines me to believe that such a revision will not prove difficult. When all the Fijian types are brought together for comparison with the abundant material now available, it should be possible to delimit and correlate the local species with accuracy. In spite of the fact that it is the largest family of phanerogams in Fiji, the Rubiaceae does not present insurmountable taxonomic problems. Differences of opinion as to the rank of categories may remain for some time, but the taxa appear in general to be well delimited.

The place of deposit of specimens is indicated by: A (Arnold Arboretum), US (U. S. National Museum).

HEDYOTIS L.

Hedyotis tenuifolia Sm. in Rees, Cycl. 17: no. 19. 1811.

Oldenlandia tenuifolia sensu Forst. f. Fl. Ins. Austr. Prodr. 11. 1786; non Burm. Fl. Ind. 37. pl. 14, fig. 1. 1768.

VANUA LEVU: Mathuata: Seanggangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., *Smith 6886* (A, US) (on edge of pond in open rolling country; corolla white).

I am indebted to Dr. F. R. Fosberg for pointing out the identity of this interesting little plant, which, in my observation, is rare in Fiji; at least

¹ No. XV of this series was published as vol. 30, part 5 (pages 523–573), of Contributions from the U. S. National Herbarium, 1953.

² Under the auspices of the Arnold Arboretum of Harvard University and the John Simon Guggenheim Memorial Foundation, with the aid of grants from the Penrose Fund of the American Philosophical Society and the Bache Fund of the National Academy of Sciences.

I have seen it only in the cited locality. However, Seemann noted the species as "Common on roadsides throughout Viti."

Smith's binomial of 1811 is based upon Forster's interpretation of *Oldenlandia tenuifolia* Burm. and his concept is based entirely upon Forster's specimen from Tanna, in the New Hebrides. *Oldenlandia tenuifolia* Burm. is said by Smith to be a very different plant, which he refers to *Hedyotis herbacea*. Of course, by modern nomenclatural practice, Smith could not have based his binomial upon Forster's interpretation of an earlier name to the exclusion of the actual type of that concept, and therefore Forster cannot be cited as the parenthetical author. However, there is no obstacle to the acceptance of Smith's *Hedyotis tenuifolia* as a new species, dating from 1811 and based entirely upon Forster's Tanna specimen. Previous mention of the occurrence of the species (as *Oldenlandia tenuifolia* Forst. non Burm.) in the New Hebrides and Fiji is to be found also in the following works: DC. Prodr. 4: 425. 1830; Seem. Fl. Vit. 126. 1866; Drake, Ill. Fl. Ins. Pac. 186. 1886; Guillaumin in Bull. Soc. Bot. Fr. 74: 698. 1927.

GARDENIA Ellis

Gardenia candida sp. nov.

Arbor ad 7 m. alta, ramulis gracilibus, inferne subteretibus cinereis glabris, internodiis distalibus leviter angulatis 2–3 mm. diametro pilis pallidis 0.1–0.3 mm. longis puberulis; stipulis longe persistentibus in tubum 9–11 mm. longum pilis ad 0.5 mm. longis puberulum vel setulosum apice undulatum connatis; petiolis liberis semiteretibus superne leviter canaliculatis 2.5–3.5 cm. longis ut ramulis juvenilibus puberulis; foliorum laminis chartaceis in sicco viridibus, ellipticis, (12–) 15–20 cm. longis, (5–) 6–9 cm. latis, basi acutis et in petiolum decurrentibus, in acuminem obtusum ad 1 cm. longum apice cuspidatis, margine integris, supra costa nervisque secundariis plus minusve puberulis exceptis glabris, subtus pilis patentibus pallidis 0.2–0.4 mm. longis uniformiter et persistenter puberulis, costa valida supra elevata subtus prominente, nervis secundariis utrinsecus 15–17 patentibus marginem versus curvatis et interconnexis utrinque elevatis, nervis tertiariis numerosis inter secundarios transversis et rete venularum utrinque prominulis; floribus magnis in axillis distalibus solitariis, pedicello crasso subtereti sub anthesi 1–1.5 cm. longo cum calyce pilis pallidis 0.3–0.7 mm. longis copiose patentipiloso; calyce infundibulari sub anthesi lobis inclusis 3.5–4 mm. longo et apicem versus circiter 2.5 mm. diametro, tubo parvo obconico, limbo chartaceo vel subcoriaceo elongato dorso 4-alato, alis semiobovatis circiter 2.5 cm. longis et 1 cm. latis conspicue nervatis apice rotundatis apicem limbi ipsi scariosum et undulatum 5–10 mm. excedentibus; corolla in vivo subcarnosa hypocrateriformi, tubo 4.5–5 cm. longo et basi circiter 4 mm. diametro faucibus ad 1 cm. ampliatis, extus glabro vel obscure puberulo, intus ad lineas staminibus alternatas pilis debilibus adscendentibus 1–2 mm. longis copiose piloso, limbo patentipiloso sub anthesi rotato 9–11 cm. diametro ad basim 8-lobato, lobis late imbricatis oblongis

ad 5 cm. longis et 2–2.5 cm. latis apice rotundatis; staminibus 8, antheris sessilibus anguste oblongis circiter 17 mm. longis et 1.5 mm. latis, dorso complanatis, a tubo corollae leviter exsertis; stylo crasso clavato quam tubo corollae paullo brevior demum in stigmata 4 circiter 1 cm. longa dorso minute strigillosos fisso.

VANUA LEVU: Mathuata: Seangangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., Nov. 25, 1947, *Smith 6640* (A TYPE, US) (*ndrenga*; tree 7 m. high, in patches of forest in open rolling country; corolla-lobes pure white, the tube greenish).

Species of *Gardenia* are among the more obvious components of the flora of the Mathuata coast of Vanua Levu. Their abundance in the patches of forest that occur here and there in this comparatively dry region, together with the pervasive fragrance of their flowers, imparts a characteristic charm to the landscape. Species known to occur in Mathuata are *G. vitiensis* Seem., *G. gordonii* Baker, *G. grievae* Horne ex Baker, and *G. hillii* Horne ex Baker. The species here described cannot be confused with any of these nor with the several others known from Viti Levu. Superficially *G. candida* is most like *G. gordonii*, but it differs in the indument of its leaves, pedicels, and calyx, and in its even larger flowers.

MASTIXIODENDRON Melchior

Mastixiodendron pilosum A. C. Sm. in Jour. Arnold Arb. 26: 109. 1945.

VANUA LEVU: Mathuata: Southern base of Mathuata Range, north of Natua, alt. 100–250 m., *Smith 6781* (A, US) (slender tree 8 m. high, in dense forest; mature fruit dull yellow).

The third known collection of the species agrees very well with the two earlier ones, which are similarly in fruiting condition. Previously the species has been known with certainty only from the province of Mbua, Vanua Levu.

IXORA L.

***Ixora pedionoma* sp. nov.**

Arbor ad 2 m. alta, ramulis gracilibus apices versus complanatis 1–1.5 mm. diametro pilis 0.1–0.3 mm. longis patenti-puberulis, vetustioribus subteretibus cinereis glabris, internodiis 5–10 mm. longis; stipulis liberis e basi late ovato aristatis 4–5 mm. longis ut ramulis puberulis; foliis glabris subsessilibus, petiolis canaliculatis 1–3 mm. longis, laminis chartaceis siccitate olivaceis lanceolatis, 4–9 cm. longis, 1–2 cm. latis, basi attenuatis et in petiolum decurrentibus, apice in mucronem callosum 0.5–1 mm. longum angustatis, margine integris leviter incrassatis, utrinque levibus, costa supra valde elevata subtus prominente, nervis secundariis utrinsecus 8–12 subadscendentibus utrinque prominulis vel supra planis, rete venularum immerso vel subtus prominulo; inflorescentiis in ramulis brevibus terminalibus 3-floris, basi bracteis binis foliaceis subtentis, bracteis papyraceis ovatis, (15–) 18–25 mm. longis, (10–) 12–15 mm. latis, basi sub-

cordatis, apice cuspidatis, reticulato-nervatis; pedicellis teretibus 1–1.5 mm. longis ut calyce copiose pallido-puberulis; calyce sub anthesi circiter 3 mm. longo, limbo erecto, lobis 4 deltoideis obtusis haud 0.5 mm. longis; corolla hypocrateriformi glabra, tubo gracillimo (haud 1 mm. diametro) circiter 25 mm. longo, lobis 4 patentibus oblongis subacutis 8–8.5 mm. longis circiter 3 mm. latis; staminibus exsertis glabris, filamentis ligulatis 1–1.5 mm. longis, antheris anguste oblongis 4–5 mm. longis; stylo gracillimo exserto parte inclusa puberulo, stigmatibus complanatis circiter 2 mm. longis; fructibus ellipsoideis ad 5 mm. diametro persistenter puberulis calycis limbo coronatis.

VANUA LEVU: *Mathuata*: Seangangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., Nov. 28, 1947, *Smith 6703* (A TYPE, US) (shrub 1–2 m. high, along river in patches of forest in open rolling country; corolla and style white).

The new species (of § *Phylleilema*) is a very close relative of *I. nandari-vatensis* Gillespie, in comparison with which it has its branchlets distally and its shorter stipules puberulent, its leaves comparatively short-petioled, proportionately narrower, and smooth rather than bullate in texture, its inflorescence-bracts larger, and its corolla with a very slender, longer tube and larger lobes.

Ixora decora sp. nov.

Arbor ad 4 m. alta, ramulis apices versus gracilibus 1.5–3 mm. diametro complanatis parce puberulis mox glabratis, vetustioribus teretibus cinereis, internodiis plerumque 2–5 cm. longis; stipulis glabris vel minute puberulis in tubum brevem subcoriaceum circiter 2 mm. longum biaristatum (aristis circiter 2 mm. longis) caducum connatis, basi intus pilis circiter 0.7 mm. longis ornatis; foliis glabris, petiolis gracilibus canaliculatis 8–16 mm. longis, laminis rigide chartaceis in sicco fusco-olivaceis, oblongo-lanceolatis, (6–) 9–13 cm. longis, (2–) 2.5–4 cm. latis, basi acutis vel attenuatis et in petiolum decurrentibus, apice rotundatis vel obtusis vel obtuse cuspidatis apice ipso obscure callosomucronulato, margine integris, costa supra impressa vel in sulcula elevata subtus prominente, nervis secundariis utrinsecus 12–14 patentibus marginem versus anastomosantibus supra subplanis subtus prominulis, rete venularum plerumque immerso; inflorescentiis terminalibus trichotome corymbosis multifloris ad 9 cm. longis et 13 cm. diametro, radiorum pedunculis gracilibus glabris ad 5 cm. longis, ramulis infimis subtrichotomis haud articulatis minute et sparse puberulis, bracteolis paucis inconspicuis subulatis ad 1 mm. longis; pedicellis sub fructu 0.5–3 mm. longis, bracteolis basi ovarii insertis minutis 0.2–0.3 mm. longis; calyce ovario incluso cupuliformi minute puberulo paullo post anthesin 1–1.5 mm. longo, limbo minuto, lobis 4 rotundatis haud 0.2 mm. longis; corolla in alabastro 4-lobata lobis extus minute puberulis; fructibus globosis in sicco rugulosis glabris ad 7 mm. diametro, calycis limbo minuto coronatis.

VANUA LEVU: Mathuata: Southern slopes of Mt. Numbuloa, east of Lambasa, alt. 100–350 m., Oct. 27, 1947, *Smith 6376* (A TYPE, US) (tree 4 m. high, in open forest; fruit red).

The new species (§ *Pavettopsis*) is of the general relationship of *I. elegans* Gillespie, having a similar type of inflorescence, stipule, etc. However, it differs from *I. elegans* in its shorter stipules, its oblong-lanceolate leaf-blades that are proportionately narrower and rounded or obtuse at apex (the apices in *I. elegans* being gradually narrowed and predominantly acute), and the very obscure indument of its inflorescences. Another species of this relationship, *I. tubiflora* A. C. Sm., differs from *I. decora* in its more conspicuously aristate stipules, as well as in foliage characters and in its glabrous calyx with comparatively conspicuous lobes.

Ixora myrsinoides sp. nov.

Arbor ad 8 m. alta, ramulis teretibus cinereis glabris apicem versus circiter 2 mm. diametro interdum in internodiis distalibus inconspicue complanatis; stipulis subcoriaceis glabris circiter 5 mm. longis e basi late ovata aristatis, basi lateraliter haud connatis, arista dorsali 2–3 mm. longa; foliis glabris, petiolis gracilibus canaliculatis 1.3–2.3 cm. longis, laminis chartaceis in sicco olivaceis oblongo-ellipticis, (10–) 12–16 cm. longis, (5–) 6–8 cm. latis, basi obtusis sed subito angustatis et in petiolum manifeste decurrentibus, apice acutis et calloso-mucronulatis, margine integris et leviter recurvatis, costa supra paullo impressa subtus prominente, nervis secundariis utrinsecus 8–12 patentibus leviter curvatis marginem versus anastomosantibus supra subplanis subtus elevatis, rete venularum utrinque manifeste prominulo; inflorescentiis terminalibus subsessilibus trichotome corymbosis sub anthesi floribus inclusis ad 5.5 cm. longis et 9 cm. diametro, pedunculo 2–3 mm. longo, bracteis primariis oblongo-lanceolatis vel obovatis 7–15 mm. longis, radiorum pedunculis ad 1.5 cm. longis et ramulis infimis subtrichotomis glabris, bracteolis ad 2 mm. longis infimis subulatis minoribus; pedicellis sub anthesi 2–4 mm. longis vel subnullis, bracteolis basi ovarii insertis 0.3–1 mm. longis; calyce ovario incluso anguste cupuliformi sub anthesi 3.5–4 mm. longo obscurissime puberulo, limbo erecto lobis 4 oblongo-deltaideis obtusis 0.7–0.9 mm. longis inclusis 1.5 mm. longo intus minute strigilloso; corolla subcarnosa glabra hypocrateriformi, tubo circiter 15 mm. longo et basi 1.3 mm. diametro superne paullo ampliato, lobis 4 patentibus oblongis obtusis circiter 9 mm. longis et 4 mm. latis; staminibus exsertis glabris, filamentis gracilibus 2–3 mm. longis, antheris anguste oblongis 7–8 mm. longis; stylo gracillimo exserto medium versus obscure puberulo superne incrassato, stigmatibus circiter 2 mm. longis; fructibus subglobosis in sicco rugulosis glabrescentibus ad 9 mm. diametro calycis limbo coronatis.

VITI LEVU: Mba: Northern slopes of Mt. Namendre, east of Mt. Koromba [Pickering Peak], alt. 750–900 m., May 27, 1947, *Smith 4529* (A TYPE, US) (tree 8 m. high, in dense forest; corolla white, the lobes faintly pink-tinged; fruit at length purple).

The closest relative of *I. myrsinoides* (§ *Pavettopsis*) is apparently *I. tubiflora* A. C. Sm., from which it differs in the shorter aristae of its stipules, its much more compact inflorescence, its puberulent calyx with slightly shorter lobes, and its corolla with a shorter tube but larger lobes. Other related species, *I. elegans* Gillespie and *I. harveyi* (A. Gray) A. C. Sm., are readily distinguished from *I. myrsinoides* in details of leaf-shape, calyx-lobes, and in their comparatively small corollas.

***Ixora greenwoodiana* sp. nov.**

Arbor gracilis ad 10 m. alta vel frutex, ramulis gracilibus cinereis subteretibus apices versus 1.5–2 mm. diametro inconspicue puberulis mox glabrescentibus, internodiis plerumque 1–3 cm. longis; stipulis subcoriaceis mox glabris 3.5–5 mm. longis e basi late ovata aristatis, basi lateraliter breviter connatis, arista 1.5–3 mm. longa; petiolis gracilibus canaliculatis 7–12 mm. longis minute puberulis vel in sulcula glabris; foliorum laminis chartaceis in sicco olivaceis, elliptico- vel obovato-lanceolatis, 9–13 cm. longis, 3.5–5 cm. latis, basi attenuatis et in petiolum decurrentibus, apice cuspidatis et calloso-mucronulatis, margine integris et anguste recurvatis, supra glabris, subtus pilis pallidis haud 0.05 mm. longis persistentibus minute sed dense et uniformiter puberulis, costa supra leviter impressa subtus prominente, nervis secundariis utrinsecus 8–12 erecto-patentibus leviter curvatis inconspicue anastomosantibus supra prominulis subtus elevatis, rete venularum supra prominulo subtus plerumque immerso; inflorescentiis e ramulis brevibus terminalibus trichotome corymbosis sub fructu ad 6 cm. longis et 10 cm. diametro, pedunculo 3–5 mm. longo arcte puberulo, bracteis primariis obovatis foliaceis ad 2 cm. longis, radiorum pedunculis ad 2 cm. longis et ramulis infimis subtrichotomis minute puberulis; pedicellis paullo post anthesin et sub fructu ad 2 mm. longis vel subnullis, bracteolis basi ovarii insertis subulatis 0.3–1 mm. longis puberulis; calyce ovario incluso oblongo-cupuliformi paullo post anthesin 2.5–3 mm. longo dense sed minute puberulo, limbo suberecto lobis 4 deltoideis obtusis 0.5–0.7 mm. longis inclusis circiter 1 mm. longo intus obscure strigilloso; corolla non visa; fructibus subglobosis ad 8 mm. diametro in sicco rugulosis obscure puberulis calycis limbo coronatis.

VITI LEVU: M b a : Eastern slopes of Mt. Koroyanitu, Mt. Evans Range, alt. 950–1050 m., May 2, 1947, *Smith 4249* (A TYPE, US) (slender tree 10 m. high, in dense low forest; fruit becoming pink); Mt. Evans Range, alt. about 1150 m., *Greenwood 939* (A) (shrub, to 3 m. high; young leaves golden-brown, the flower-buds deep red).

The new species (of § *Pavettopsis*) suggests *I. harveyi* (A. Gray) A. C. Sm. in the size and shape of its leaves and their narrowed bases, but it differs in the close but uniform indument of the lower surfaces of leaves (the leaves of *I. harveyi* being strictly glabrous), in its more ample and puberulent inflorescence, and in its pilose calyx with comparatively short lobes. Other Fijian species of § *Pavettopsis* with leaves pilose beneath are *I. maxima* Seem. and *I. pubifolia* A. C. Sm., but both of these have more

pronounced foliar and inflorescence indument and substantially larger leaves. *Ixora greenwoodiana* differs from *I. myrsinoides*, described above, not only in the foliage indument, but also in the short petioles, the considerably smaller leaf-blades more gradually narrowed at base, and the smaller calyx-limb.

Ixora bullata Turrill in Jour. Linn. Soc. Bot. 43: 25. 1915.

VANUA LEVU: MATHUATA: Summit ridge of Mt. Numbuiloa, east of Lambasa, alt. 500–590 m., *Smith 6414* (A, US) (shrub or slender tree 2–4 m. high, in dense forest; inflorescence compact, deep red).

The extraordinary species described by Turrill bears little resemblance to other Fijian *Ixorae*; our specimens have some of the leaves even more extreme in size (up to 40×3 cm.) than those originally described. Apparently the species is otherwise represented only by the type, collected in southeastern Viti Levu (*im Thurn 359*, at Kew).

PSYCHOTRIA L.

Psychotria, the largest genus of phanerogams in Fiji, has had referred to it more than 60 binomials based on material from the archipelago. Some of these have been reduced outright and others are now referred to varietal status, but there remain in Fiji at least 55 described species of *Psychotria* which seem readily distinguishable. Particular efforts were made during my 1947 trip to obtain material of as many *Psychotriae* as possible, with a view to clarifying the status of various inadequately known species. Many, if not most, of the older species were re-collected, and it was gratifying to observe that certain species, hitherto considered rare, are in fact locally quite abundant. Of other species a second or third known collection was obtained, but there still remain several Fijian species known only from the type collection. It is hoped that future collectors will pay particular attention to this complex genus, which, in my opinion, can be locally understood by the examination of all types in connection with abundant new material. Most of the species appear to be sharply delimited, and one may suspect that much of the confusion in herbaria is due to misinterpretation of types or attempts to expand species concepts beyond reasonable limits. In the present treatment I describe 15 species as new; thus the genus now includes approximately 70 Fijian species, a number which will almost certainly be substantially increased by future collecting.

Careful consideration of all the Fijian species of *Psychotria* with various types of enlarged calyces inclines me at present to agree with Fosberg's reduction of my genera *Calycodendron* and *Eumorphanthus* (cf. *Sargentia* 1: 125. 1942). The calyx appears to be a highly variable feature in *Psychotria*, although it is reasonably constant within species. The Fijian species that have the calyx-limb much exceeding the tube show several trends of development, but these are not necessarily stages along one line of evolution, and consequently the single character of a showy calyx-limb probably does not justify generic segregation. An extreme development

of the calyx-limb is found in *P. eumorphanthus* and approached in *P. confertiloba*, these species also being characterized by very large, 4-angled fruits. To this group two new species are added in the present paper. Species with a large calyx-limb abruptly flattened, or essentially rotate nearly from the base, are very striking on the basis of this character; this group ("*Calycodendron*") includes *P. glabra*, *P. magnifica*, *P. fragrans*, and *P. rufocalyx*. A somewhat similar calyx-limb, but campanulate or crateriform rather than subrotate, occurs in *P. pubiflora*, *P. milnei*, and *P. gibbsiae*. Species which resemble the latter group in this character but have the calyx smaller are *P. neurocalyx*, *P. calycosa*, and *P. gillespieana*. *Psychotria vitiensis* must also be associated with this group, although its calyx-limb is erect and fusiform, abruptly flaring only at the apex. The species here mentioned, together with several novelties of this relationship, would have to be associated in *Calycodendron* if that genus were maintained, but I think that Fosberg is probably correct in implying that no sharp line can be drawn between this group and *Psychotria* proper. In the following treatment the species of the "*Calycodendron-Eumorphanthus*" alliance are discussed toward the end.

Psychotria broweri Seem. Fl. Vit. 135 (as *P. browerii*). 1866.

VITI LEVU: N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, between Nandrau and Nanga, alt. 725–825 m., *Smith 5483* (A, US) (tree 4–5 m. high, in dense forest; fruit red).

The cited specimen is the only one of my 1947 collection that represents *P. broweri*, a species too broadly interpreted in herbaria. Seemann originally cited as representing this species his numbers 244 and 254, both from the island of Moturiki and both represented in the Gray Herbarium. The description agrees with no. 254, which Gillespie has indicated as an isotype. Number 244 represents a different species and has been so indicated by Gillespie; it has a single pedunculate inflorescence and small leaves.

Psychotria broweri is characterized by its glabrous foliage and infructescence; its leaves are narrowly elliptic, up to 25 × 9 cm., acute to attenuate at both ends. Its cymes are strictly sessile, with several (up to 6) short radiating branches, and its fruits are turbinate, up to 12 mm. long and sharply several-carinate when dried. My no. 172, from Kandavu, is also typical of this species, while my no. 1023 (from Koro) and *Gillespie 3476* and *Degener 15335* (both from Viti Levu) probably represent it. In herbaria, identifications of this species and of the related *P. brackenridgei* A. Gray, *P. turbinata* A. Gray, and *P. pritchardii* Seem. are often questionable. However, study of the types of these and of certain more recently described species will permit adequate circumscriptions.

Psychotria brackenridgei A. Gray in Proc. Am. Acad. 4: 44 (as *P. brackenridgii*). 1860.

VITI LEVU: M b a : Northern slopes of Mt. Namendre, east of Mt. Koromba [Pickering Peak], *Smith 4548*; western and southern slopes of Mt. Tomanivi,

Smith 5137, 5266, 5305, 5748; N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, between Nandrau and Rewasau, *Smith* 5616.

The cited specimens (all A, US) are from shrubs or slender trees 2–5 m. high, occurring in dense forest at 725–1150 m. altitude, and all bear fruits that are at first pale green and eventually orange to red. These specimens may confidently be referred to Gray's concept, as represented by the type at the Gray Herbarium (no Exploring Expedition material of this species is in the U. S. National Herbarium). In foliage the species is very similar to *P. broweri* Seem., like which it has strictly sessile cymes. In comparison with Seemann's species, *P. brackenridgei* has a more ample inflorescence with persistently pilose branchlets and calyces. This species has been misidentified (by the writer and others) as *P. storckii* Seem. and *P. pritchardii* Seem.; older collections from Vanua Levu and Taveuni, as well as Viti Levu, fall into a reasonable concept of *P. brackenridgei*. Further study is needed to analyze the differences between this species and the very closely related *P. turbinata* A. Gray.

***Psychotria pritchardii* Seem. Fl. Vit. 135. 1866.**

VANUA LEVU: M a t h u a t a : Seanggangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., *Smith* 6744 (A, US) (slender tree 4 m. high, in patches of forest in open rolling country; corolla-bud white).

The cited collection is the only one of the species obtained by me in 1947. *Psychotria pritchardii*, as represented by *Seemann* 259 (isotype, Gray Herb.), from Taveuni, is readily characterized by its essentially glabrous habit, its large, fleshy, auriculate, subpersistent stipules, its lanceolate-elliptic leaves with blades up to 17 × 6 cm., its elongate inflorescence with a reflexed peduncle up to 18 cm. long, its slender pedicels 6–10 mm. long, and its shallowly undulate calyx-limb. Also representing the species are *Gillespie* 4826 and *Smith* 743, from Taveuni, and *Degener & Ordonez*, 13820, 14015, and 14097 and *Smith* 1606 and 1617, all from Vanua Levu. Certain specimens from Viti Levu so identified are in need of further study before they can be definitely referred here.

***Psychotria furcans* Fosberg in *Sargentia* 1: 133. 1942.**

VITI LEVU: M b a : Mt. Evans Range, *Smith* 4091, 4277, 4354, 4372; upper slopes of Mt. Koromba [Pickering Peak], *Smith* 4660, 4661; northern slopes of Mt. Namendre, east of Mt. Koromba, *Smith* 4550; slopes of the escarpment north of Nandarivatu, *Smith* 6038, 6270; N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, *Smith* 5477, 5608.

The cited specimens (all A, US), collected in dense forest or hillside thickets at altitudes of 550–1075 m., were from shrubs or slender trees 2–10 m. high; the corolla is white or distally pale pink, and the fruit is red to bright orange. The species is typified by *Degener* 14450, from the Nandarivatu region, and Fosberg has questionably referred to it another specimen from lowland Vanua Levu. It now seems that *P. furcans* is one of the more abundant *Psychotriae* in upland Viti Levu, and I would also

refer here *Degener* 14369, 14625, and 14637, which were otherwise identified by Fosberg. The type is among the smaller-leaved specimens, but no differences of consequence are noted, except that the indument of the inflorescence is persistent to a varying degree. The petioles vary in length up to 7 cm., the leaf-blades may rarely be as large as 23×8 cm., and the peduncle, usually sharply reflexed, is up to 6 cm. in length. I doubt if this species is as closely related to my *P. edentata* and *P. pachyantha* as implied by Fosberg, and I should rather relate it to *P. pritchardii* Seem., from which stipular characters and the shorter inflorescence distinguish it. The forked stipules indicate a relationship of *P. furcans* to *P. broweri*, *P. brackenridgei*, and their more immediate relatives, from which the pedunculate inflorescence readily separates it.

***Psychotria chrysophylla* Fosberg in Bull. Torr. Bot. Cl. 67: 423. 1940.**

VITI LEVU: M b a : Slopes and summit of Mt. Ndelaiyoö, on the escarpment west of Nandarivatu, *Smith* 5078; southern slopes of Mt. Ndelainathovu, on same escarpment, *Smith* 4931; western and southern slopes of Mt. Tomanivi, *Smith* 5296; R a : Ridge from Mt. Namama (east of Nandarivatu) toward Mt. Tomanivi, *Smith* 5702; N a i t a s i r i : Northern portion of Rairaimatuku Plateau, between Mt. Tomanivi and Nasonggo, *Smith* 6130; N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, between Nandrau and Nanga, *Smith* 5545, 5593.

The cited specimens (all A, US) agree very closely with the original description, based only on the type, *St. John* 18344, collected in the upper Wainimala drainage near the center of Viti Levu. The type locality falls into the present Province of Naitasiri and lies about eight miles south of the last locality listed above. My specimens were from trees or shrubs 4–5 m. high, occurring in dense forest at elevations of 725–1150 m.; the corolla is pure white and in one case a fragrance of the flowers was noted. The only recorded local name (no. 5545) was *kau simbala*. Slightly to amplify the original description, it may be noted that the petioles vary in length from 0.5 to 3 cm., the leaf-blades are sometimes as much as 15 cm. long and 5.5 cm. broad, and the peduncle may be as long as 6 cm. The variation is no more than normal for a species of *Psychotria*, and in fact this is a very well-marked species, distinguished as originally noted by the uniform pubescence of the inflorescence and the rather regularly oblong leaf-blades which dry a characteristic yellow-green, at least on the upper surface.

***Psychotria st.-johnii* Fosberg in Bull. Torr. Bot. Cl. 67: 423. 1940.**

VITI LEVU: M b a : Slopes of Mt. Nairosa, eastern flank of Mt. Evans Range, *Smith* 4025, 4049; hills east of Nandala Creek, about 3 miles south of Nandarivatu, *Smith* 5927; hills between Nggaliwana and Nandala Creeks, *Smith* 5839; hills between Nggaliwana and Tumbeindreketi Creeks, *Smith* 5890, 5991; N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, between Nandrau and Rewasau, *Smith* 5648.

The cited specimens (all A, US) are from shrubs or slender trees 1–8 m. high, occurring in dense forest at elevations of 725–1050 m.; the calyx and corolla at anthesis are pure white and the fruit is red to bright orange. This material agrees very closely with the two specimens previously known of the species, both collected by St. John near the center of Viti Levu, about 10 miles south of the last locality listed above and in the present Province of Naitasiri. The species is very sharply marked by the short reddish indument of its long, calyptrate stipules and lower leaf-surfaces, by its acuminate, pale-nerved leaves, and by its white flowers with the calyx very inconspicuously lobed. Although the flowers are usually glabrous without, the reddish indument of the inflorescence-branches sometimes (as in my no. 5890) extends to the calyx-tube.

Psychotria degeneri Fosberg in *Sargentia* 1: 134. 1942.

VITI LEVU: M b a : Western slopes of Mt. Nanggaranambuluta [Lomalangi], east of Nandarivatu, *Smith* 4771, 4773; western and southern slopes of Mt. Tomanivi [Mt. Victoria], *Smith* 5246, 5301; N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, between Nandrau and Nanga, *Smith* 5540.

The cited specimens (all A, US) agree very well with the type and the three other collections originally cited; they were taken from shrubs or low trees 2–5 m. high, growing in dense forest at 725–1150 m. elevation. The inflorescences (branches, pedicels, calyx, and corolla) are white, or the pedicel and calyx may be faintly pink-tinged, and the fruit is red to orange. This recently described species, like *P. st.-johnii* (discussed above), proves to be fairly common in the undergrowth of the rain-forest of upland Viti Levu. It resembles *P. st.-johnii* in its strongly veined leaves and its delicate, sessile inflorescences, but it is most readily distinguished by its longer indument, which extends to the calyx and corolla, the individual hairs being reddish and several-celled.

Psychotria diffusiflora sp. nov.

Arbor vel frutex ad 4 m. altus, praeter corollam et interdum costam foliorum ubique glaber, ramulis gracilibus teretibus apices versus ut petiolis luteo-glanduloso-lineolatis, internodiis distalibus 5–15 mm. longis; stipulis papyraceis maturitate 17–25 mm. longis in vaginam connatis superne in tubum brevem haud 1 mm. longum contractis, apice minute liberis recurvatis inconspicue bifidis, caducis, vagina ellipsoidea inflorescentiam juvenilem obtengente ad 12 mm. lata uno latere erumpente; petiolis leviter canaliculatis vel semiteretibus in sicco rugulosis 1–2 (–2.5) cm. longis, laminis foliorum papyraceis vel subcoriaceis copiose immerso-glanduloso-punctatis vel -lineolatis siccitate fusco-olivaceis, ellipticis vel elliptico-oblancheolatis, (6–) 7–12.5 cm. longis, (2.5–) 3–5 cm. latis, basi acutis et in petiolum manifeste decurrentibus, apice cuspidatis vel breviter acuminatis (apice ipso gracili 5–15 mm. longo calloso obtuso), margine integris vel undulatis leviter recurvatis, costa supra paullo elevata subtus prominente et interdum pilis rubellis multiseptatis circiter 1 mm. longis

patenti-pilosa, nervis secundariis utrinsecus 10–13 patentibus curvatis pallidis marginem versus inconspicue anastomosantibus supra prominulis vel subplanis subtus valde elevatis, rete venularum intricato utrinque subimmerso vel plano; inflorescentia terminali cymosa copiose ramulosa multiflora ad 10 cm. longa et lata epedunculata vel pedunculo ad 8 mm. longo, ramulis plerumque 5 divaricatis, pedunculis secundariis gracilibus ad 7 cm. longis, bracteis bracteolisque lanceolatis 0.5–2 mm. longis caducis, pedicellis gracilibus sub anthesi 7–9 mm. longis; calyce obconico-cupuliformi sub anthesi 1.5–2 mm. longo et apice diametro, tubo brevi, limbo suberecto membranaceo 0.5–0.8 mm. longo inconspicue nervato truncato vel obscure 5-denticulato; corolla membranacea infundibulari sub anthesi lobis inclusis 6–7 mm. longa faucibus pilis circiter 0.5 mm. longis copiose barbellatis exceptis glabra, tubo brevi haud 2 mm. longo, lobis 5 patentibus vel reflexis oblongis obtusis circiter 4 mm. longis et 1.5 mm. latis; staminibus 5 faucibus affixis exsertis, filamentis gracilibus circiter 3 mm. longis, antheris oblongis circiter 1.5 mm. longis; disco conspicuo annulari-pulvinato circiter 0.7 mm. alto; stylo gracili quam corolla brevior apice bifido; fructibus ovoideis circiter 7 mm. longis et 5 mm. latis, in sicco 4-angulatis et leviter complanatis, calycis limbo persistente coronatis, pyrenis hastatis circiter $6.5 \times 4.5 \times 2.5$ mm., basi obtusis, medium versus abrupte contractis, superne angustatis, ventre levibus, dorso basi levi excepto unicarinatis.

VITI LEVU: M b a : Southern slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1150 m., *Smith 5247* (A, US) (tree 4 m. high, in dense forest; pedicel, calyx, and corolla pure white), *6087* (A TYPE, US) (Sept. 18, 1947; shrub 3 m. high, in dense forest; stipules greenish white; calyx and corolla white).

A representative of Gray's subgenus *Piptilema*, the new species is characterized by its glabrous habit, its large calyptrate stipules with very minute free portions, and its ample and many-flowered, spreading inflorescence. Its only close ally seems to be *P. filipes* A. Gray, from which it differs in its shorter petioles, in having its leaf-blades acute and decurrent at base (rather than narrowly but obviously cordate) and with more numerous secondary nerves, and in its long-pedicellate flowers, which are considerably larger, especially as to the corolla-lobes. My understanding of *P. filipes* is based entirely upon the type (US 62336), which was redescribed and discussed by Fosberg in *Sargentia* 1: 129. 1942.

***Psychotria tetragona* Seem. Fl. Vit. 137. 1866.**

VITI LEVU: M b a : Slopes and summit of Mt. Ndelaioö, on the escarpment west of Nandarivatu, alt. 900–1053 m., *Smith 5057, 5058* (A, US).

The cited specimens agree very well with an isotype in the Gray Herbarium, *Seemann 252*, from Ovalau. The species is characterized by its glabrous habit, lanceolate leaves, forking stipules which are basally connate around the inflorescence-bud, very compact inflorescence, small calyx, conspicuous and pulvinate disk, and clavate corolla about 15 mm.

long. Also to be placed here are *Degener 14611*, *15057*, and *15167* (all A, US), from Viti Levu.

Similar to *P. tetragona*, but differing in its broader leaf-blades (3–6 cm. broad) is *Smith 4352* (A, US) (Viti Levu: Mba: Northern portion of Mt. Evans Range, between Mt. Vatuyanitu and Mt. Natondra, alt. 700–900 m.). My no. *4551* (A, US) (Viti Levu: Mba: Northern slopes of Mt. Namendre, east of Mt. Koromba, alt. 750–900 m.) is similar to no. *4352* except that the costa of the lower leaf-surface is copiously hispidulous with hairs 0.5–0.8 mm. long. In inflorescence characters these two specimens are hardly distinguishable from typical *P. tetragona*, and at present I am inclined to consider them extreme representatives of this species; it may be noted that both occur on isolated forested hills rising from the grassland of western Viti Levu.

Psychotria tetragonoides Fosberg, a species of this alliance somewhat suggested by the last two numbers discussed above, is clearly separable from *P. tetragona* by the indument of its foliage and flowers; it is not represented in my collection.

***Psychotria ampullacea* sp. nov.**

Arbor gracilis ad 5 m. alta, ramulis subteretibus gracilibus praeter cicatrices stipularum hispidulas glabris, internodiis distalibus 6–10 mm. longis; stipulis glabris papyraceis 2–2.5 cm. longis in vaginam ampullaceam connatis, vagina basi ventricosa inflorescentiam juvenilem obtegente superne in tubum circiter 1 cm. longum valde contracta, stipularum partibus liberis circiter 3 mm. longis bifidis; petiolis gracilibus glabris 1–3 cm. longis subteretibus rugulosis; foliorum laminis chartaceis in sicco fusco-olivaceis, lanceolatis vel oblanceolatis, (9–) 12–17 cm. longis, (2–) 3.5–5 cm. latis, basi longe attenuatis et in petiolum decurrentibus, apice gradatim acuminatis, margine anguste recurvatis, supra glabris, subtus pilis 0.7–1 mm. longis rubellis multiseptatis copiose (demum sparsiore) patentipilosis, costa supra elevata subtus prominente, nervis secundariis utrinsecus 11–13 curvatis patentibus inconspicue anastomosantibus supra leviter subtus valde elevatis, rete venularum subimmerso; inflorescentia terminali subcapitata 9–12-flora, floribus pedicellatis, pedicellis teretibus 2–3 mm. longis copiose pilosis (pilis pallidis patentibus 0.5–0.7 mm. longis multiseptatis); calyce campanulato 8–9 mm. longo et apice circiter 4 mm. diametro, tubo brevi haud 1.5 mm. longo ut pedicello piloso, limbo erecto submembranaceo glabro conspicue nervato 5-lobato, lobis deltoideo-lanceolatis suberectis acutis 1–2 mm. longis; corolla submembranacea infundibulari sub anthesi circiter 20 mm. longa, extus lobis inclusis pilis ad 1 mm. longis ut pedicello copiose patentipilosa, intus glabra, lobis 5 erectis oblongis 4–5 mm. longis obtusis; staminibus glabris medium corollae versus insertis, filamentis gracilibus 4–5 mm. longis, antheris oblongis 2.5–2.8 mm. longis haud exsertis; disco conspicue pulvinato glabro circiter 1 mm. alto; stylo gracili glabro quam corolla brevior apice bifido.

VITI LEVU: N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, between Nandrau and Rewasau, alt. 725–825 m., Aug. 11, 1947, *Smith 5659* (A TYPE, US) (slender tree 5 m. high, in dense forest; calyx pale green; corolla white).

The species here described, together with the following, seems superficially to be related to *P. tetragona* Seem. and *P. tetragonoides* Fosberg, because of its congested, subcapitate inflorescence. However, the calyces of the two older species are very small, scarcely 1.5 mm. in length, and inconspicuously dentate, whereas the calyces of the two species here described as new are comparatively elongate and obviously lobed. In texture, the calyx-limb of *P. ampullacea* suggests that of some of the species that have been referred to *Calycodendron*, but in those species the inflorescence is ample and freely branched. Probably these two new species belong in the general alliance of *P. tetragona*, but they seem to have no immediate relatives.

Further distinguishing characteristics of *P. ampullacea* are the indument of the leaves, pedicels, calyx-tube, and corolla (the hairs being divided into many short cells by transverse septae), and the form of the stipular sheath, which is flask-shaped, swollen at base to enclose the inflorescence-bud and narrowed to a very slender elongate throat, the stipules being free and bifid only at the extreme apices.

Psychotria tomaniviensis sp. nov.

Frutex ad 4 m. altus, ramulis gracilibus glabris subteretibus vel in sicco angulatis, internodiis distalibus 5–10 mm. longis; stipulis papyraceis 5–8 mm. longis basim versus connatis, superne 3–5 mm. liberis et profunde bifidis, glabris vel apicem versus puberulis; foliis glabris, petiolis canaliculatis 5–10 mm. longis vel subnullis, laminis chartaceis in sicco fusco-viridibus oblanceolatis, (7–) 10–16 cm. longis, (2.5–) 3.5–4.5 cm. latis, basi attenuatis et in petiolum longe decurrentibus, apice obtuse cuspidatis, margine integris et anguste recurvatis, costa supra subplana vel leviter elevata subtus prominente, nervis secundariis utrinsecus 12–15 curvatis patentibus inconspicue anastomosantibus supra subplanis subtus elevatis, rete venularum subimmerso; inflorescentia terminali subcapitata multiflora, bracteolis sub floribus lanceolatis circiter 2 mm. longis ciliolatis caducis, pedicellis teretibus circiter 1 mm. longis glabris; calyce campanulato sub anthesi circiter 10 mm. longo et apice 4 mm. diametro lobis interdum obscure puberulis exceptis glabro, tubo brevi haud 2 mm. longo, limbo erecto submembranaceo manifeste nervato 5-lobato, lobis oblongis 2–3 mm. longis subacutis; corolla submembranacea infundibulari sub anthesi circiter 22 mm. longa, extus glabra vel juventute pilis conicis haud 0.1 mm. longis minute puberula, intus medium versus pilis albidis mollibus copiose tomentella, lobis 5 erectis oblongis circiter 5 mm. longis obtusis; staminibus glabris, antheris subsessilibus apicem tubi corollae versus oblongis circiter 2 mm. longis; disco conspicue pulvinato glabro circiter 0.7 mm. alto; stylo gracili glabro leviter exserto apice bifido; fructibus subglobosis circiter

15 mm. diametro, pericarpio crasse carnosio, pyrenis obovoideo-oblongis circiter $8 \times 6 \times 5$ mm., ventre levibus, dorso superne conspicue 3-carinatis, apice profunde cavatis, basi rotundatis.

VITI LEVU: M b a : Western slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1150 m., July 17, 1947, *Smith 5294* (A TYPE, US) (shrub 3–4 m. high, in dense forest; calyx green; corolla pure white; fruit red).

The new species differs from the above described *P. ampullacea*, which seems to be its closest ally, in its much smaller stipules that do not form the flask-shaped sheath so noticeable in *P. ampullacea*, in its glabrous leaves and much shorter petioles, in its glabrous pedicels and calyx-tube, in having the external indument of the corolla composed of very minute conical hairs and evanescent, while within the corolla is tomentellous rather than glabrous, and in its sessile anthers and elongate style. Such characters as length of filament and style, and perhaps internal pubescence of the corolla, may sometimes be correlated with actual or incipient dioecism in *Psychotria*.

Psychotria valleculata sp. nov.

Arbor ad 4 m. alta sub fructu cicatricibus stipularum obscure ferrugineo-setulosis exceptis ubique glabra, ramulis subteretibus crassis, internodiis longitudine diversis; stipulis subcoriaceis deltoideo-lanceolatis 6–7 mm. longis, basi connatis, superne liberis, apice integro minute mucronulatis; petiolis crassis rugulosis semiteretibus 8–18 mm. longis, laminis subcoriaceis in sicco pallide olivaceis, oblongo-obovatis, (6–) 8–10.5 cm. longis, (2.5–) 3.5–5 cm. latis, basi attenuatis et in petiolum longe decurrentibus, apice rotundatis, margine integris et anguste recurvatis, costa utrinque valde elevata, nervis secundariis utrinsecus 8–10 patentibus anastomosantibus utrinque elevatis, rete venularum subimmerso; inflorescentia non visa; infructescentia terminali capitata, receptaculo coriaceo rotundato vel clavato 2–4 mm. alto, fructibus 8–15 confertis radiatis subsessilibus, pedicellis haud 1 mm. longis vel subnullis; fructibus obovoideis in vivo ad 11 mm. longis et 8 mm. latis, in sicco indistincte 4-angulatis, calycis limbo mox caduco non viso, disco pulvinato interdum conspicuo circiter 1 mm. alto, pyrenis subhastato-ovoideis circiter $7 \times 4 \times 2$ mm., ventre complanatis vel basim versus inconspicue costatis, dorso conspicue unicarinatis, basi acutis, paullo supra medium valde contractis, apice rotundatis, parte basali obcordiformi carina excepta complanata, parte apicali conspicue angustiore.

VITI LEVU: N a n d r o n g a & N a v o s a : Southern slopes of Nausori Highlands, in drainage of Namosi Creek above Tumbenasolo, alt. 300–450 m., June 4, 1947, *Smith 4721* (A TYPE, US) (tree 4 m. high, in dense forest of valley; fruit red).

In spite of the lack of flowers, this collection seems patently to represent a new species, characterized by its oblong-obovate, rounded leaves and its strictly capitate infructescences. In the latter character and in its general

aspect the new species suggests *P. tetragona* Seem., but its stipules are of another type and its leaves are quite different; it is further characterized by its obovoid fruits, of which the pyrenes are unicarinate, sharply contracted near the middle, and broadly obcordiform in the basal part. It is perhaps referable to Gray's subgenus *Piptilema*, but it is only remotely related to the species of this group discussed by Fosberg (in *Sargentia* 1: 126. 1942).

***Psychotria evansensis* sp. nov.**

Arbor ad 5 m. alta vel frutex, ramulis crassis subteretibus novellis minute puberulis exceptis glabris, internodiis distalibus 1–3 cm. longis; stipulis papyraceis 3–5 mm. longis deltoideis obtusis, basi in vaginam brevem connatis, superne liberis, mox caducis; foliis magnis, petiolis semiteretibus 2–5.5 cm. longis primo minute puberulis demum glabris, laminis papyraceis in sicco fusco-viridibus anguste oblongis, 16–26 cm. longis, 5–8.5 cm. latis, basi attenuatis et in petiolum longe decurrentibus, in acuminem 1–2 cm. longum gradatim angustatis, margine integris vel undulatis anguste recurvatis, immerso-luteo-glandulosis, supra glabris, subtus minute puberulis glabrisque, costa supra subplana vel leviter elevata subtus prominente, nervis secundariis utrinsecus 12–18 curvatis patentibus anastomosantibus supra subplanis subtus elevatis, rete venularum intricato supra immerso subtus prominulo; inflorescentia non visa; infructescentia terminali cymosa fructibus inclusis 5–9 cm. diametro pedunculata, pedunculo gracili 2–4 cm. longo et ramulis primariis 4 vel 5 divaricatis 1–2.5 cm. longis pedicellisque minute puberulis, fructibus apices ramulorum versus pluribus, pedicellis gracilibus 1–3 mm. longis; fructibus in vivo obovoideis 11–12 mm. longis 9–10 mm. latis, in sicco valde 6–10-costatis, basi obtusis, apice rotundatis vel paullo depressis, calycis limbo persistente inconspicuo circiter 1 mm. longo submembranaceo fere ad basim 5-lobato lobis subacutis, pericarpio carnosio copiose immerso-luteo-glanduloso, pyrenis semi-obovoideis circiter $10 \times 7.5 \times 5$ mm., basi rotundatis, apice truncatis, ventre complanatis rugulosis basim versus costatis, dorso conspicue 3-carinatis, carinis crista rotundatis rugulosis, sulcis profundis, marginibus incrassatis interdum carinis similibus.

VITI LEVU: M b a : Slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, alt. 700–1050 m., in dense forest, *Smith* 4024 (A, US) (shrub 3 m. high), 4072 (A TYPE, US) (Apr. 28, 1947; slender tree 5 m. high; fruit red).

Although it lacks flowers, the species here described is evidently a relative of *P. forsteriana* A. Gray, which it resembles in general appearance, leaf-shape and -texture, and the obovoid fruits with a very short calyx-limb, immersed-glandular pericarp, and 3-carinate pyrenes. The new species differs from *P. forsteriana* in its larger leaves, obviously pedunculate infructescences, and much larger fruits. The mature fruits of *P. forsteriana* are 6–7 mm. long and 5–6 mm. broad, while the pyrenes do not exceed $6 \times 5 \times 3.5$ mm. In the typical (Samoan) variety, the pyrenes are dorsally nearly smooth but somewhat rugulose with three incipient carinae, while

in var. *vitiense* A. Gray the pyrenes are obviously 3-carinate and marginally thickened so that they appear 5-carinate, the carinae being rounded and the sulcae deep, as in the new species.

While *P. evansensis* bears a resemblance to the common *P. carnea* (Forst. f.) A. C. Sm. in its foliage and in the size and shape of its mature fruits, the relationship is remote. *Psychotria carnea* has the persistent calyx-limb obvious, 3–6 mm. in length, and the pericarp only inconspicuously glandular. The pyrenes of *P. carnea* are fundamentally uncarinate, although the carina may be flattened on its crest or variously interrupted, while subsidiary protuberances may give the dorsal surface of the pyrene an irregularly rugulose appearance.

Psychotria amoena sp. nov.

Arbor compacta vel gracilis ad 8 m. alta vel frutex, ramulis gracilibus teretibus glabris; stipulis papyraceis lanceolato-oblongis maturitate 8–11 mm. longis in vaginam spathaceam connatis, acuminatis, margine scariosis, extus glabris, intus pilis debilibus subadscendentibus 0.3–0.6 mm. longis pubescentibus, mox caducis, basibus pilosis interdum subpersistentibus; foliis glabris, petiolis gracilibus 0.5–2 cm. longis fere ad basim saepe anguste alatis, laminis papyraceis in sicco pallide viridibus, ovato-ellipticis vel lanceolatis, (2.5–) 3–5.5 cm. longis, (1–) 1.5–2.8 cm. latis, basi acutis vel attenuatis et in petiolum longe decurrentibus, apice cuspidatis et calloso-apiculatis, margine integris et anguste recurvatis, costa utrinque elevata, nervis secundariis utrinsecus 4–8 patentibus curvatis marginem versus anastomosantibus utrinque prominulis, rete venularum inconspicuo; inflorescentia terminali cymosa sub anthesi et fructu 2–4 cm. longa e basi 3-partita vel pedunculata, pedunculo raro ad 1 cm. longo, ramulis gracilibus ad 2.5 cm. longis glabris vel obscure puberulis; floribus praeter corollam intus glabris 3–10 apice ramulorum irregulariter aggregatis, pedicellis gracilibus sub anthesi 2–5 mm. sub fructu ad 9 mm. longis; calyce turbinato limbo incluso 2–2.5 mm. longo et apice diametro, limbo tenui suberecto 1–1.5 mm. longo inconspicue nervato integro vel obscure 5-denticulato; corolla subcarnosa breviter tubulosa vel campanulata sub anthesi 3–4 mm. longa, tubo brevi apice pilis pallidis circiter 0.5 mm. longis copiose barbellato, lobis 5 vel 6 oblongis circiter 2 mm. longis apice cucullatis sub anthesi reflexis; disco annulari-pulvinato circiter 0.5 mm. alto; staminibus 5 vel 6, filamentis gracilibus ad 0.5 mm. longis, antheris oblongis 0.8–1 mm. longis utroque obtusis; stylo quam corolla brevior in lobos complanatos profunde bifido; fructibus in vivo obovoideis in sicco inconspicue 6–10-costatis 7–8 mm. longis 6–7 mm. latis calycis limbo brevi persistente coronatis, pericarpio copiose immerso-luteo-glanduloso, pyrenis semi-obovoideis circiter $5.5 \times 4.5 \times 3$ mm., basi obtusis, apice rotundatis, ventre levibus, dorso 3-carinatis, carinis obtusis, sulcis brevibus, margine leviter incrassatis.

VITI LEVU: M b a : Slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, alt. 700–1050 m., *Smith 4090* (A, US) (slender tree 8 m. high, in dense forest; corolla white; fruit deep red); hills east of Nandala Creek, about 3 miles south

of Nandarivatu, alt. 850–970 m., Sept. 9, 1947, *Smith 5949* (A TYPE, US) (compact tree 4 m. high, in mossy forest on ridge; calyx and disk pink-tinged; corolla, stamens, and style white; fruit green, at length dull orange); N a n d r o n g a & N a v o s a : Northern portion of Rairaimatuku Plateau, alt. 725–825 m., between Nandrau and Rewasau, *Smith 5402* (A, US) (shrub 3 m. high, in dense forest; fruit becoming red), between Nandrau and Nanga, *Smith 5562* (A, US) (*ndengendenge*; compact tree 5 m. high, in dense forest; ripe fruit red). All the cited specimens are in fruit, and the first two bear flowers as well.

The close relationship of this graceful little plant to *P. forsteriana* A. Gray is shown by the similarity of their stipules, leaf-texture, fruits, and small flowers (with truncate calyx-limb and barbellate corolla-throat). However, the new species is more delicate in every respect, having leaves less than half as large and fewer-flowered inflorescences. Also of this general alliance is *P. setchellii* Gillespie, which, as compared with *P. amoena*, has the leaves longer and proportionately narrower, acuminate, and with more numerous secondaries, the inflorescence larger, and the corolla nearly twice as long.

Psychotria incompta sp. nov.

Arbor compacta ad 4 m. alta praeter calycis limbum sub fructu ubique glabra, ramulis rectis teretibus, internodiis distalibus plerumque 1–2.5 cm. longis; stipulis papyraceis 12–15 mm. longis primo in vaginam gracilem fere ad apices connatis, apicibus minutis simplicibus calloso-acutis, vagina mox irregulariter erumpente, basi breviter persistente; petiolis semiteretibus vel supra costatis gracilibus 0.5–2 cm. longis, laminis chartaceis vel subcoriaceis in sicco viridi-olivaceis, lanceolatis vel anguste ellipticis, 6–8.5 cm. longis, 2–3.5 cm. latis, basi attenuatis et in petiolum longe decurrentibus, apice cuspidatis vel in acuminem calloso-apiculatum ad 1 cm. longum gradatim angustatis, margine integris vel undulatis, costa supra elevata subtus prominente, nervis secundariis utrinsecus 8–10 patentibus curvatis anastomosantibus utrinque elevatis vel supra subplanis, rete venularum supra immerso subtus prominulo; inflorescentia desiderata; infructescentia terminali congesta simplici sessili, receptaculo parvo, pedunculis raro evolutis denique videtur 3-floris, pedicellis sub fructu gracilibus 6–15 mm. longis raro (apice pedunculi brevis binis) brevioribus basi bracteis evanescentibus subtentis; fructibus 4–9 per infructescentiam obovoideis maturitate ad 14 mm. longis et 8.5 mm. latis in vivo levibus in sicco obscure costatis, basi acutis, apice calycis limbo persistente coronatis, limbo papyraceo erecto 2.5–4 mm. longo utrinque obscure puberulo vel glabrato 4-lobato, lobis oblongis rotundatis 2–3 mm. longis, disco pulvinato carnosio, pericarpio crasse carnosio eglanduloso, pyrenis semi-obovoideis circiter $10 \times 6.5 \times 4$ mm., basi acutis, apice irregulariter truncatis, ventre levibus, dorso rotundatis et obscure unicarinatis, carina obtusa marginibus incrassatis simili.

VITI LEVU: M b a : Upper western slopes of Mt. Tomanivi [Mt. Victoria], alt. about 1200 m., July 10, 1947, *Smith 5208* (A TYPE, US) (compact tree 4 m. high, in dense mossy forest); summit of Mt. Nanggaranambuluta [Lomalangi],

east of Nandarivatu, alt. 1100–1120 m., *Smith 5672* (A, US) (compact tree 4 m. high, in dense forest).

Although flowers are not known for the species described above, its relationship to *P. carnea* (Forst. f.) A. C. Sm. and *P. archboldiana* Fosberg is indicated by the type of stipule, the leaf-texture, the large obovoid fruit with a conspicuous and persistent calyx-limb, and the shape of the pyrenes. From both of these species (§ *Eumachia*), however, *P. incompta* is readily distinguished by its simple inflorescence, the elongate pedicels being borne directly upon a small capitate receptacle. Rarely a short peduncle supports a pair of fruits, whereas in the two allied species the inflorescence is compound and obviously pedunculate. The new species further differs from *P. archboldiana* in its more robust habit, larger fruit, and dorsally comparatively smooth (rather than irregularly tuberculate) pyrenes, and from *P. carnea* in its narrower leaves and shorter calyx-limb.

Psychotria leucocalyx sp. nov.

Arbor ad 4 m. alta praeter corollam intus pilosam ubique glabra, ramulis teretibus, novellis petiolisque luteo-glanduloso-lineolatis, internodiis distalibus plerumque 2–3.5 cm. longis, stipulis papyraceis 7–10 mm. longis inferne in vaginam tubulosam connatis, partibus liberis 3–6 mm. longis laminaribus profunde bilobatis; petiolis gracilibus semiteretibus 1.5–2.2 cm. longis, laminis subcoriaceis vel chartaceis in sicco fusco-olivaceis, oblongo-ellipticis, (8–) 12–17 cm. longis, (3–) 5–7.5 cm. latis, basi obtusis vel subacutis et in petiolum breviter decurrentibus, apice obtusis vel obtuse cuspidatis, margine integris et anguste recurvatis, utrinque immerso-luteo-lineolatis, costa supra leviter elevata et sulcata subtus prominente, nervis secundariis utrinsecus 12–14 patentibus curvatis marginem versus anastomosantibus supra paullo subtus valde elevatis, rete venularum intricato subimmerso vel utrinque subprominulo; inflorescentia terminali pedunculata 3–4-plo divisa sub anthesi ad 13 cm. longa, pedunculo subtereti crasso 3.5–4.5 cm. longo, ramulis 4 vel 5, pedunculis secundariis 2–3 cm. longis; bracteis sub ramulis submembranaceis glabris obovatis ad 10 mm. longis in lobos lanceolatos 3–5 acutos profunde fissis, bracteolis similibus, ultimis circiter 2 mm. longis, omnino caducis; pedicellis gracilibus sub anthesi 4–7 mm. longis; calyce magno, tubo turbinato sub anthesi 1.5–2 mm. longo et circiter 3 mm. diametro apice contracto, limbo membranaceo conspicue reticulato-nervoso breviter adscendente deinde patente subrotato 15–17 mm. diametro profunde 4- vel 5-lobato, lobis oblongo-deltaideis ad 7 mm. longis latisque obtusis margine undulatis; corolla tenuiter carnosam tubulosam sub anthesi 23–30 mm. longa et medium versus circiter 3 mm. diametro superne paullo ampliata, extus glabra, intus omnino copiose puberula etiam medium versus pilis pallidis ad 1 mm. longis molliter tomentella, lobis 4 vel 5 oblongis 3–5 mm. longis suberectis vel demum reflexis apice rotundatis et cucullatis; staminibus 4 vel 5 faucibus affixis, antheris subsessilibus oblongis circiter 3.5 mm. longis basi sagittatis apice obtusis; disco conspicuo hemisphaerico-pulvinato circiter 0.8 mm. alto, stylo

filiformi leviter exserto, stigmatibus lobis complanatis; fructibus juvenilibus turbinatis in sicco leviter costatis, calycis limbo mox caduco.

VITI LEVU: Naitasiri: Northern portion of Rairaimatuku Plateau, between Mt. Tomanivi [Mt. Victoria] and Nasonggo, alt. 870–970 m., Sept. 18, 1947, *Smith 6103* (A TYPE, US) (tree 4 m. high, in dense forest; calyx and corolla white).

This striking species, characterized by its large, spreading, membranaceous calyx-limb, is closely allied only to *P. magnifica* (Gillespie) Fosberg, from which it differs in having its leaf-blades proportionately slightly broader and predominantly obtuse at base and in having its inflorescence glabrous except for the inner surface of the corolla. *Psychotria magnifica* has the inflorescence-branches, pedicels, calyx-tube (and base of limb), and outer surface of corolla copiously puberulent. Other species of this immediate relationship, *P. glabra* (Turrill) Fosberg and *P. fragrans* (Gillespie) Fosberg, differ from *P. leucocalyx* more sharply, the first in its elongate calyx-tube and even larger calyx-limb and corolla, the second in its smaller leaves, comparatively small and conspicuously glandular-lineate calyx, and hispidulous corolla.

Psychotria jugalis sp. nov.

Arbor compacta ad 4 m. alta, ramulis crassis teretibus glabris, nodis distalibus plerumque 1–2 cm. longis obscure luteo-glanduloso-lineolatis; stipulis papyraceis 10–15 mm. longis dorso pilis rubellis 0.5–1 mm. longis furfuraceo-setosis, inferne in vaginam cupuliformem 4–5 mm. longam connatis, partibus liberis oblongis in segmentos 2 deltoideos acutos profunde bifidis; foliis glabris, petiolis crassis semiteretibus 1.5–3 cm. longis, laminis subcoriaceis in sicco fusco-olivaceis oblongo-ellipticis, (8–) 11–15 cm. longis, (3.5–) 5–7 cm. latis, basi acutis et in petiolum decurrentibus, apice cuspidatis et calloso-obtusis, margine integris et anguste recurvatis, costa supra valde elevata subtus prominente, nervis secundariis utrinsecus 10–13 patentibus leviter curvatis marginem versus anastomosantibus supra subplanis subtus elevatis, rete venularum subimmerso; inflorescentia terminali sub anthesi ad 9 cm. longa pedunculata multiflora plerumque 3-plo divisa bracteis bracteolisque et corolla exceptis glabra, pedunculo crasso tereti 2.5–3 cm. longo, ramulis 4 vel 5 patentibus, pedunculis secundariis ad 3 cm. longis; bracteis sub ramulis papyraceis lanceolatis 7–10 mm. longis ut stipulis dorso copiose rufo-pilosis (pilis 0.2–0.5 mm. longis), profunde 3–5-lobatis, lobo medio elongato acuto, caducis, cicatricibus pilis rufidis copiosis ornatis, bracteolis similibus, ultimis 1–3 mm. longis; pedicellis teretibus paullo ante anthesin circiter 4 mm. longis; calyce magno, tubo turbinato 1.5–2 mm. longo et circiter 3 mm. diametro, limbo membranaceo conspicue reticulato-nervoso breviter adscendente deinde patente subrotato 10–12 mm. diametro profunde 5-lobato, lobis oblongo-deltoideis ad 3 mm. longis et 4 mm. latis obtusis; corolla carnosa tubulosa ante anthesin ad 13 mm. longa et medium versus circiter 3 mm. diametro superne paullo ampliata, extus marginibus loborum leviter pilosis exceptis

glabra, intus inferne glabra medium versus pilis pallidis circiter 1 mm. longis copiose molliter induta, lobis 5 oblongis in alabastro circiter 2.5 mm. longis intus puberulis apice rotundatis et cucullatis; staminibus 5 faucibus affixis, antheris subsessilibus oblongis circiter 3 mm. longis basi sagittatis apice obtusis; disco hemisphaerico-pulvinato circiter 0.6 mm. alto; stylo tereti in alabastro quam corolla brevior, stigmatis lobis complanatis.

VITI LEVU: M b a : Ridge between Mt. Nanggaranambuluta [Lomalangi] and Mt. Namama, east of Nandarivatu, alt. 1050–1120 m., Aug. 18, 1947, *Smith 5681* (A TYPE, US) (compact tree 4 m. high, in dense forest; calyx white).

The species here described is evidently closely related to the preceding (*P. leucocalyx*), like which it has a membranaceous, subrotate calyx-limb and an externally glabrous corolla. It differs from *P. leucocalyx* in its copiously reddish-pilose stipules, bracts, and bracteoles, in its smaller calyx, and presumably in having its inflorescence more compact, although *P. jugalis* is not known at full anthesis.

Psychotria gibbsiae S. Moore in Jour. Linn. Soc. Bot. 39: 152. 1909.

VITI LEVU: M b a : Slopes and summit of Mt. Ndelaiyoö, on the escarpment west of Nandarivatu, alt. 900–1053 m., *Smith 5068* (A, US) (freely branching tree 5 m. high, in dense forest; calyx-limb and corolla white).

Among the specimens of this relationship available to me, the cited number is the only one that appears in every respect to agree with Moore's description. The original collections, *Gibbs 664* and *734*, came from "Nandarivatu, 2700 [ft.], edge of N. W. escarpment," which may be the precise locality of my no. *5068*. Mt. Ndelaiyoö is one of the eminences surmounting the escarpment west of Nandarivatu, and an old trail from Nandarivatu toward Mba passes near it; consequently it is a locality almost certainly visited by Gibbs. The species, as I interpret it, is characterized not only by its small leaves and compact cymes, but by the close and uniform puberulence of its inflorescence (including branches, pedicels, bracts, bracteoles, calyx, and corolla, the hairs being very dense and 0.1–0.2 mm. long), by having its campanulate (not subrotate) calyx-limb about 8 mm. long, and by having its puberulent stipules connate below into a campanulate (not tubular) base 3–5 mm. long, the free portions being about 5 mm. long and deeply bifid into lanceolate lobes.

Psychotria nandarivatensis sp. nov.

Arbor ad 4 m. alta, ramulis subteretibus, novellis et petiolis interdum patenti-pilosis (pilis rubellis ad 0.3 mm. longis) mox glabratis, nodis distalibus plerumque 5–15 mm. longis; stipulis papyraceis glabris 10–18 mm. longis glandulis minutis luteis linearibus copiose ornatis in vaginam tubulosam vel ampulliformem connatis, partibus liberis 2–3 mm. longis profunde bifidis; petiolis semiteretibus 1–2 cm. longis, laminis subcoriaceis in sicco olivaceis, lanceolatis vel anguste ellipticis, (5–) 7–13 cm. longis, (2–) 3–5.5 cm. latis, basi attenuatis et in petiolum decurrentibus, apice subacutis vel obtuse callosocuspidatis, margine integris et anguste recurva-

tis, supra glabris, subtus pilis rubellis multiseptatis fastigantibus 0.5–1 mm. longis patentibus ornatis demum glabratis, costa supra elevata subtus prominente, nervis secundariis utrinsecus 9–12 erecto-patentibus marginem versus leviter curvatis et anastomosantibus supra subplanis subtus elevatis vel prominulis, rete venularum immerso; inflorescentia compacta cymosa epedunculata pauciflora simplici (floribus receptaculo parvo enatis) vel e basi inconspicue 3-ramulosa raro 2-plo divisa, ramulis brevibus ut pedicellis patenti-pilosis (pilis multiseptatis rufidis 0.3–0.7 mm. longis) vel mox glabratis; bracteolis membranaceis deltoideis vel lanceolatis 1–4 mm. longis saepe irregulariter pauci-fissis, margine ciliolato excepto glabris, lobis calloso-apiculatis; pedicellis teretibus sub anthesi 8–14 mm. longis raro longioribus; calyce campanulato sub anthesi circiter 12 mm. longo et 10 mm. diametro ut pedicellis extus piloso vel glabrato vel glabro, tubo inconspicuo sub anthesi haud 1.5 mm. longo superne non contracto, limbo papyraceo in 5–6 mm. basalibus erecto tubuloso 3–4 mm. diametro deinde patente, lobis 5 oblongis 3–5 mm. longis 4–5 mm. latis manifeste nervatis apice obtusis; corolla submembranacea infundibulari sub anthesi lobis inclusis 17–20 mm. longa et basim versus circiter 2 mm. diametro superne ampliata, primo ut calyce extus copiose pilosa (pilis pallidioribus ad 1 mm. longis) inferne saepe subglabrata, tubo intus supra medium similiter piloso, lobis 5 oblongis circiter 4×2 mm. apice rotundatis demum reflexis; staminibus 5 in faucibus affixis, filamentis glabris brevibus, antheris oblongis circiter 2.5 mm. longis apice obtusis, loculis basi saepe divergentibus; disco conspicuo hemisphaerico-pulvinato circiter 1.5 mm. alto luteo-glanduloso-lineolato; stylo filiformi, stigmatibus lobis complanatis.

VITI LEVU: M b a : Immediate vicinity of Nandarivatu, alt. 800–900 m., *Smith 5031* (A TYPE, US) (July 2, 1947; tree 4 m. high, in dense forest along stream; corolla white), *Degener & Ordonez 13598* (A, US, etc.) (tree, in rain-forest); western slopes of Mt. Nanggaranambuluta [Lomalangi], east of Nandarivatu, alt. 850–1000 m., *Smith 6303* (A, US) (compact tree 4 m. high in dense forest).

The new species differs from its closest ally, *P. gibbsiae* S. Moore (discussed above), in having its stipules connate into a tubular or flask-shaped sheath, with the free tips comparatively minute, in having its inflorescence-branches, pedicels, and calyx spreading-pilose with comparatively long, reddish, multiseptate hairs (or glabrate, but not closely puberulent), in having its bracteoles glabrous except for the ciliolate margins, and in having its calyx campanulate from the base, whereas in *P. gibbsiae* it is slightly contracted at the apex of the tube and then flaring slightly into the campanulate limb. It should be noticed that no. 6303, identical with no. 5031 in every other respect, has its calyx glabrous, indicating that the degree of indument is not as dependable as its type.

Psychotria vaughanii sp. nov.

Frutex, ramulis crassis teretibus apicem versus pilis haud 0.1 mm. longis copiose sed minute cinereo-puberulis, nodis distalibus 1–3 cm. longis; stipulis papyraceis 3–4 mm. longis (immaturis?) dorso parce puberulis

inferne in vaginam brevem connatis, partibus liberis circiter 2 mm. longis bifidis; petiolis crassis semiteretibus 0.7–1.4 cm. longis ut ramulis juvenilibus dense puberulis, laminis coriaceis in sicco luteo-viridibus, oblanceolatis vel anguste ellipticis, 12–19 cm. longis, 4–7 cm. latis, basi acutis et in petiolum decurrentibus, apice obtuse cuspidatis, margine undulatis et anguste recurvatis, supra glabris, subtus minute sed copiose puberulis, costa valida supra leviter elevata et obscure sulcata subtus prominente, nervis secundariis utrinsecus 12–14 patentibus curvatis marginem versus obscure anastomosantibus utrinque inconspicue elevatis, rete venularum immerso; inflorescentia terminali epedunculata e basi 3-ramulosa multiflora plerumque 4-plo divisa, ramulis pedicellisque copiose puberulis (pilis fulvis circiter 0.1 mm. longis), bracteolis papyraceis lanceolatis ad 1 mm. longis margine ciliolato et irregulariter fisso excepto glabris caducis; floribus e nodis ultimis plerumque 3, pedicellis gracilibus sub anthesi 3–5 mm. longis; calyce sub anthesi circiter 5 mm. longo et apice diametro extus copiose puberulo vel superne demum glabrato, tubo minuto cupuliformi, limbo campanulato inferne erecto breviter tubuloso circiter 3 mm. diametro apice subito patente, lobis 5 deltoideis rotundatis circiter 1.5×2 mm.; corolla submembranacea infundibulari sub anthesi 11–12 mm. longa et basim versus circiter 1.5 mm. diametro superne ampliata, extus inconspicue sed copiose puberula, intus inferne glabra medium versus pilis pallidis circiter 0.5 mm. longis copiose tomentella superne puberula, lobis 5 erectis oblongis circiter 1.5 mm. longis apice rotundatis et cucullatis; staminibus 5 apicem tubi corollae versus insertis glabris, filamentis gracilibus circiter 1 mm. longis, antheris oblongis circiter 2 mm. longis; disco pulvinato circiter 0.6 mm. alto; stylo gracili quam corolla brevior, stigmatibus lobis complanatis.

VITI LEVU: Naitasiri: Prince's Road, mile 7 [approximate vicinity of Tholo-i-suva], alt. about 150 m., Nov. 10, 1946, *J. H. Vaughan 3323* (TYPE in herbarium of British Museum) (common shrub, with terminal clusters of tubular white flowers).

The species here described suggests *P. fragrans* (Gillespie) Fosberg in the size and spreading apex of its calyx-limb. However, the calyx-limb of *P. fragrans* is subrotate from its base, rather than campanulate, and is conspicuously glandular-lineate, while the plant is essentially glabrous in habit, has comparatively small leaves, a pedunculate inflorescence, and a longer corolla. Actually *P. vaughanii* in calycine characters more nearly approximates *P. gibbsiae* S. Moore, a species with much smaller leaves and a more compact and fewer-flowered inflorescence. The new species is further distinguished by the uniform puberulence of its vegetative parts and inflorescence and by having its narrowly campanulate calyx-limb flaring only at the apex.

Psychotria mundula sp. nov.

Frutex ad 2 m. altus ubique praeter corollam glaber vel partibus novellis minute puberulis, ramulis gracilibus teretibus in sicco rugulosis, internodiis

distalibus 2–6 mm. longis; stipulis papyraceis ovato-oblongis 3.5–6 mm. longis in vaginam inferne connatis, superne liberis saepe scarioso-marginatis, dorso brevi-calcaratis vel in apicem subacutum vel acuminatum interdum puberulum productis; foliis apices ramulorum versus confertis parvis, petiolis gracilibus semiteretibus 2–7 mm. longis, laminis subcoriaceis obscure immerso-glandulosis in sicco viridi-olivaceis, lanceolatis vel ellipticis, (2–) 3–5.5 cm. longis, (0.5–) 1–2 cm. latis, basi attenuatis et in petiolum decurrentibus, apice acutis vel breviter acuminatis et calloso-apiculatis, margine integris anguste recurvatis, costa supra subplana subtus elevata, nervis secundariis utrinsecus 7–10 inconspicuis patentibus vel subadscendentibus curvatis anastomosantibus supra planis subtus prominulis, rete venularum immerso; inflorescentia terminali cymosa compacta pauciflora epedunculata vel pedunculo ad 2 mm. longo, sub anthesi floribus inclusis 2–3 mm. longa, ramulis plerumque 3 patentibus ad 1.5 cm. longis saepe 3-floris, floribus sessilibus, lateralibus apice ramulorum secundariorum ortis, bracteolis sub floribus 1–2 mm. longis deltoideis acutis vel interdum apice trifidis; calyce infundibulari sub anthesi limbo incluso 5–7 mm. longo et apice 3–4 mm. diametro, tubo brevi, limbo papyraceo erecto lobis inclusis 3–4 mm. longo, lobis 5 vel 6 deltoideo-lanceolatis 1–1.5 mm. longis incrassatis acutis interdum apice patentibus; corolla tenuiter carnosa gracili infundibulari sub anthesi lobis inclusis 13–15 mm. longa, extus glabra, intus faucibus et lobis pallide puberula, lobis 5 vel 6 oblongis obtusis 3–4 mm. longis sub anthesi patentibus; staminibus 5 vel 6, filamentis gracilibus ad 1 mm. longis vel subnullis, antheris oblongis 2–2.3 mm. longis utroque obtusis; disco annulari-pulvinato 0.6–0.8 mm. alto; stylo filiformi interdum corollam subaequante, apice bifido.

VANUA LEVU: *Mathuata*: Northwestern slopes of Mt. Numbuiloa, east of Lambasa, alt. 500–590 m. [also noted on summit], Nov. 6, 1947, *Smith 6533* (A TYPE, US) (shrub 2 m. high, in wind-swept thickets; corolla white). VITI LEVU: *Mba*: Mountains near Lautoka, alt. 480–550 m., *Greenwood 1226, 1227, 1270, 1271* (all US) (shrubs about 50 cm. high, on dry open hillsides; flowers white).

The very distinct species described above is characterized by its compact habit, the crowded leaves nearly concealing the small, few-flowered inflorescences. Each branch of the 3-parted inflorescence usually bears three sessile flowers, but the lateral flowers, borne on short secondary branchlets, are sometimes flanked by additional and mostly undeveloped flowers. The erect calyx-limb, with longitudinal thickenings terminating in the lobes, and the slender corolla with the throat puberulent also characterize the species. In its basic floral characters, the new species seems most closely related to *P. gillespieana* A. C. Sm. [*Calycosia laxiflora* Gillespie] (represented in my present collection by nos. 5180 and 5184, from Mt. Tomanivi, the type-locality), a species with much larger stipules which have laminar forked apices, larger and longer-petiolate leaves, a much more ample and freely divided inflorescence, and larger flowers. Greenwood's specimens were taken from two plants, his nos. 1227 and 1270

representing one and nos. 1226 and 1271 the other, the second of these having slightly the narrower leaves.

***Psychotria leptocalyx* sp. nov.**

Arbor ad 5 m. alta, ramulis gracilibus subteretibus et petiolis minute sed dense puberulis (pilis griseis ad 0.05 mm. longis), internodiis distalibus 8–15 mm. longis; stipulis papyraceis 15–17 mm. longis extus copiose puberulis, basim versus in vaginam connatis, partibus liberis laminaribus 10–12 mm. longis conspicue bifidis; petiolis gracilibus semiteretibus 1–2 cm. longis, laminis subcoriaceis in sicco fuscis, oblanceolatis vel elliptico-obovatis, 9–16 cm. longis, 3–6.5 cm. latis, basi attenuatis et in petiolum longe decurrentibus, apice obtusis vel obtuse cuspidatis, margine integris et anguste recurvatis, supra glabris, subtus minute sed uniformiter griseo-puberulis, costa supra leviter elevata et sulcata subtus prominente, nervis secundariis utrinsecus 11–13 arcuato-ascendingibus marginem versus anastomosantibus supra paullo subtus valde elevatis, rete venularum immerso; inflorescentia terminali sub anthesi ad 12 cm. longa multiflora plerumque 4-plo divisa manifeste pedunculata, pedunculo gracili ad 4 cm. longo et ramulis inflorescentiae pedicellisque copiose puberulis, pedunculis secundariis 3 radiatis 2–3.5 cm. longis; bracteolis papyraceis oblongis 1–1.5 mm. longis in lobos 3 plerumque fissis, dorso puberulis, margine ciliolatis, bracteis similibus 3–4 mm. longis mox glabratis et caducis; pedicellis sub anthesi gracilibus ad 6 mm. longis; calyce sub anthesi 6–7 mm. longo et apice 4–5 mm. diametro extus copiose puberulo, tubo pyriformi circiter 1.5 mm. longo et 2.5 mm. diametro, apice constricto, limbo papyraceo obscure nervato, parte basali fusiformi erecta 3–4 mm. longa et circiter 2.5 mm. diametro superne leviter contracta deinde subito patente, lobis 5 oblongis rotundatis circiter 1.5 × 2 mm.; corolla submembranacea infundibulari circiter 20 mm. longa (vel ultra?) et basim versus 2 mm. diametro superne ampliata, extus basi excepta cinereo-puberula, intus medium versus pilis ad 0.6 mm. longis dense tomentella, lobis 5 erectis oblongis 3–4 mm. longis apice obtusis cucullatis; staminibus 5 faucibus affixis glabris, filamentis gracilibus 1–2 mm. longis, antheris oblongis circiter 3 mm. longis; disco pulvinato circiter 0.5 mm. alto; stylo gracili quam corolla brevior, stigmatis lobis complanatis.

VITI LEVU: Mba: Hills east of Nandala Creek, about 3 miles south of Nandarivatu, alt. 850–970 m., Sept. 25, 1947, *Smith 6215* (A TYPE, US) (tree 5 m. high, in dense forest; pedicel and calyx-tube greenish white, the lobes white; corolla white).

In its comparatively narrow, fusiform calyx-limb, *P. leptocalyx* suggests *P. vitiensis* Fosberg [*Calycosia monticola* Gillespie], which, as Fosberg has pointed out (in *Sargentia* 1: 127. 1942), is distinct from *P. calycosa* A. Gray. From *P. vitiensis*, however, the new species is readily distinguished by the dense, although minute, puberulence of its vegetative and inflorescence parts, and by its larger leaves and more freely branching inflorescence. Also suggestive of the new species and resembling it in indument is *P.*

vaughanii, described above, which has the inflorescence epedunculate, the calyx proportionately broader, with the basal part of the limb campanulate rather than fusiform, and the corolla apparently shorter.

***Psychotria eumorphanthus* Fosberg in Sargentia 1: 127. 1942.**

VITI LEVU: M b a : Western slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1000 m., *Smith 5091* (A, US) (tree 6 m. high, in dense forest; calyx-limb green).

This species (*Eumorphanthus fragrans* A. C. Sm. in Bishop Mus. Bull. 141: 158. *fig. 81*. 1936) has previously been known only from the type collection, from Taveuni. The cited Viti Levu specimen, in fruit, agrees in all respects with the type and similarly has a subpersistent calyx-limb about 2 cm. long; the only apparent difference is that no. 5091 has the secondary nerves of the leaves slightly closer, 12–15 per side rather than 9–13. Unless the discovery of flowers should prove otherwise, I think that the range of the species may safely be extended to include Viti Levu.

***Psychotria leptantha* sp. nov.**

Arbor ad 12 m. alta, ramulis gracilibus subteretibus glabris (vel novellis interdum parce puberulis) apices versus 1.5–2 mm. diametro, internodiis distalibus 5–10 mm. longis; stipulis lanceolatis 6–8 mm. longis obscure puberulis vel glabris, basim versus lateraliter cohaerentibus, apice subacutis, mox caducis; foliis patentibus glabris, petiolis semiteretibus gracilibus 1–3 cm. longis, laminis papyraceis in sicco viridibus, interdum ut ramulis stipulisque cystolithis circiter 0.2 mm. longis ornatis, ellipticis vel oblanceolatis, 7–12 cm. longis, 3–5 cm. latis, basi acutis vel attenuatis et in petiolum decurrentibus, apice cuspidatis (apice ipso ad 5 mm. longo obtuso vel subacuto), margine integris, costa supra leviter elevata et basim versus anguste canaliculata subtus prominente, nervis secundariis utrinsecus 6–9 arcuato-patientibus marginem versus anastomosantibus supra subplanis subtus elevatis, rete venularum laxo utrinque prominulo vel supra immerso; inflorescentia terminali pauciflora compacte cymosa sub anthesi corolla inclusa ad 9 cm. longa et lata plerumque e basi 3-partita bracteis pluribus deltoideis obtusis 2–3 mm. longis caducis subtenta, ramulis gracilibus laxe pilosis (pilis pallidis 0.1–0.3 mm. longis obscure pluriseptatis), lateralibus 1–1.5 cm. longis apice 2- vel 3-floris, ramulo centrali semel vel bis partito plurifloro; bracteis sub floribus minutis circiter 1 mm. longis caducis, pedicellis teretibus sub anthesi 5–9 mm. longis ut ramulis pilosis in calycem gradatim crassatis; calyce graciliter infundibulari sub anthesi 1.5–2 cm. longo basim versus piloso vel puberulo alioqui glabro, tubo minuto, limbo magno erecto submembranaceo conspicue longitudinaliter nervato apice circiter 5 mm. diametro inconspicue 5-lobato, lobis inaequalibus deltoideis acutis haud 1 mm. longis; corolla hypocrateriformi submembranacea, tubo graciliter cylindrico sub anthesi 3.5–4 cm. longo et circiter 1.5 mm. diametro faucibus paullo ampliato superne extus puberulo et intus subtiliter arachnoideo-tomentello cetera glabro, lobis 5 patentibus anguste oblongis vel obovatis 13–15 mm. longis circiter 4 mm. latis mani-

festе nervatis apice obtusis extus puberulis intus glabris; staminibus 5 tubi apicem versus insertis et leviter exsertis, filamentis membranaceis ligulatis ad 5 mm. longis vel omnino tubum adnatis, antheris anguste oblongis circiter 3.5 mm. longis obtusis; disco annulari-pulvinato glabro circiter 0.8 mm. alto et 1.5 mm. diametro; stylo gracili glabro circiter 2 cm. longo in stigmata circiter 2 mm. longa fissa; floribus post anthesin saepe caducis, fructibus 1 vel 2 per inflorescentiam, pedicellis sub fructu 1–1.5 cm. longis persistenter patenti-pilosis; fructibus in vivo carnosus et ellipsoideis ad 23×15 mm. (maturis?) in sicco 4-angularibus, basim versus et basi persistente calycis limbi puberulis, parte majore calycis limbi mox caduca, pyrenis (maturis?) triquetro-ovoideis circiter 1 cm. longis latisque, basi rotundatis, apice subacutis, ventre complanatis levibus, dorso unicarinatis.

VITI LEVU: M b a : Slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, alt. 700–1050 m., in dense forest, *Smith 4048* (A TYPE, US) (April 26, 1947; tree 8 m. high; calyx and corolla pure white), *4423* (A, US) (tree 12 m. high, in fruit).

Psychotria leptantha is a sharply marked and very attractive species, characterized by its long, narrow calyx-limb and its very slender, elongate corolla-tube. It is closely allied only to *P. eumorphanthus* Fosberg, from which it obviously differs in being more delicate and slender throughout, in its much smaller leaves, slightly smaller and more slender calyx-limb, corolla with a slightly shorter tube and much smaller lobes, and shorter style. Fosberg (in *Sargentina* 1: 125, 127. 1942), in reducing my genus *Eumorphanthus* to *Psychotria*, allies its single species to *P. confertiloba* A. C. Sm. [*P. umbraticola* Gillespie]. This is perhaps the correct disposition, since the two species concerned are quite similar in basic corolla and fruit characters. However, the calyx-limb of *P. confertiloba* does not exceed 7 mm. in length, whereas in both *P. eumorphanthus* and *P. leptantha* it approaches or exceeds 2 cm. *Psychotria confertiloba* proves to be a very common species in upland Viti Levu, being represented in my present collection by nos. *4542*, *4800*, *5011*, *5129*, *5252*, *5313*, *5560*, and *5790*, and also by *Degener 13567*, *14280*, *14610*, *14754*, and *14830*. To the Vanua Levu specimens cited by me as *P. confertiloba* (in *Bishop Mus. Bull.* 141: 152. 1936) may be added *Smith 6470*, *6650*, and *Degener & Ordonez 14010*.

Psychotria gracilior sp. nov.

Arbor ad 10 m. alta sub fructu ubique glabra, partibus novellis, stipulis, petiolis inflorescentiae ramulisque cystolithis 0.1–0.3 mm. longis saepe copiose ornatis; ramulis gracilibus subteretibus apices versus 1.5–2 mm. diametro, internodiis distalibus 5–7 mm. longis; stipulis lanceolatis 1–1.5 cm. longis infra medium lateraliter connatis apice liberis et calloso-acuminatis mox caducis; foliis patentibus, petiolis gracilibus semiteretibus 1–2 cm. longis, laminis papyraceis in sicco viridibus oblanceolatis, 8–11 cm. longis, 2.5–4 cm. latis, basi attenuatis et in petiolum longe decurrentibus, apice in acuminem gracilem 5–10 mm. longum obtusum angustatis, margine

integrus et leviter recurvatus, supra cystolithis dispersim ornatis, costa supra leviter elevata subtus prominente, nervis secundariis utrinsecus 7–9 marginem versus obscure anastomosantibus supra subplanis subtus elevatis, rete venularum laxo supra plano subtus prominulo; infructescentia terminali compacte cymosa fructibus inclusis ad 4 cm. longa et 6 cm. lata e basi 3-partita bracteis caducis subtenta, ramulis lateralibus (interdum caducis cicatricibus indicatis) 8–12 mm. longis fructus 2 vel 3 gerentibus, ramulo centrali plerumque semel partito; fructibus pluribus per infructescentiam, pedicellis gracilibus 6–12 mm. longis, fructibus in vivo carnosus ellipsoideis maturitate ad 2×1.5 cm. in sicco 4-angularibus, utroque obtusis vel subacutis, calycis limbo subpersistente cylindrico papyraceo erecto 4–5 mm. longo longitudinaliter nervato coronatis, limbo apice irregulariter erosulo vel inconspicue 5-lobato, lobis deltoideis obtusis circiter 0.5 mm. longis; pyrenis triquetro-oblongo-ellipsoideis, 11–12 mm. longis, 6.5–8 mm. latis, 3.5–4 mm. crassis, basi rotundatis, apice cuspidatis, ventre complanatis levibus vel obscure sulcatis, dorso unicarinatis.

VITI LEVU: M b a : Hills between Nandala and Nukunuku Creeks, along trail from Nandarivatu toward Lewa, alt. 750–850 m., Sept. 22, 1947, *Smith 6186* (A TYPE, US) (tree 5–10 m. high, in dense forest; fruit at length deep red).

Although the specimen cited above lacks flowers, it clearly represents a new species of the general alliance of *P. leptantha*, above described, from which it differs most obviously in its comparatively short calyx-limb. *Psychotria gracilior* further differs from *P. leptantha* in its completely glabrous habit, its comparatively narrow leaves, and its apparently smaller fruits, of which the pyrenes are differently proportioned. In spite of the general similarity of these two species in foliage, perhaps a closer alliance of *P. gracilior* is with *P. confertiloba* A. C. Sm., as indicated by the similarity in size of the calyx-limb. However, *P. confertiloba* is comparatively coarse in habit, with broader leaves generally obtuse at apex and with spreading secondaries, and with larger fruits.

DEPARTMENT OF BOTANY,
U. S. NATIONAL MUSEUM,
SMITHSONIAN INSTITUTION.